

February 22, 2013



Baldwin Hills Oil Watch – California Coastal Protection Network -
Citizens Coalition for a Safe Community -Citizens Water Watch - Clean Water Action -
Earthworks - Environmental Working Group - Grassroots Coalition -
Greenaction for Health and Environmental Justice- Natural Resources Defense Council -
Physicians for Social Responsibility –Los Angeles -
Progressive Democrats of the Santa Monica Mountains - San Diego 350.org -
Sierra Club California - SLO Clean Water Action -
Transition Culver City - The Wildlands Conservancy

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Re: Comments on December 17, 2012 Discussion Draft of Proposed Hydraulic Fracturing Regulations

Dear Director Nechodom, Chief Deputy Director Marshall, and Supervisor Kustic:

Thank you for soliciting feedback on the discussion draft regulations for hydraulic fracturing (HF or fracking). This comment letter represents the combined effort of a number of environmental groups, environmental justice groups, community organizations, worker health and safety specialists, and physician/public health organizations (collectively, “Coalition”).¹ We are pleased that we have the opportunity to submit comments and provide our

¹ The signors to this letter.

recommendations. Nevertheless, we are disappointed with this initial draft that appears to fall well short of the Department of Conservation's (DOC) mandate to protect the environment, natural resources, and health of California. In order to comply with this clear mandate, as is explicit to statute and demanded by the legislature, any set of regulations must meet three goals:

1. establish standards to prevent harm to the public, natural resources and environmental quality,
2. mandate timely public disclosure and monitoring to ensure that the standards are met, and
3. provide accountability and mitigation when harm does occur.

The regulations must be sufficient to accomplish such goals regardless of the location or type of the "well stimulation" operation, whether such operations occur in remote areas or in urban areas (e.g., Los Angeles County). Regulations that require no affirmative approval for fracking operations, lack sufficient notice, and impose legislative gag rules on regulators, investigators and treating physicians when the inevitable accidents do occur, fall short of enabling the Department to protect the public and environment. Regulations that can keep all information secret, including the very existence of the well, as is the case with confidential/exploratory wells, for a period of up to four years are intolerable.

We have identified below some of our specific objections and our suggested improvements to the discussion draft regulations that we feel necessary in order to fulfill the DOC's obligation to prioritize protection of health, safety, natural resources, and the environment.

We do support the Department's progress in some areas of oversight, which the Discussion Draft reflects in:

- Requirements that operators provide written notice to DOGGR of their intent to hydraulically fracture a well.
- Requirements that operators must alert DOGGR of well casing failures.
- The intent of well construction requirements to limit fractures and fluid/gas movements to the intended geologic zones.

There are numerous issues, however, that must be addressed for the regulations to be effective in protecting public health, safety (including occupational health and safety), the environment, and natural resources, including:

- The Department must close the Halliburton loophole, which exempts the injection of fracking fluids from the federal Safe Drinking Water Act's underground injection

control (“UIC”) program. The Department should draft regulations equivalent to the federal UIC safeguards to close this loophole.

- Well stimulation cannot be removed from the Underground Injection Control (UIC) program without prohibiting use of diesel or creating parallel rules for fracking with diesel or other hydrocarbons.
- Regulations must address other well stimulation and completion techniques, such as acid matrix and steam fracking if the regulations intend to remove such operations from UIC.
- An affirmative review/approval process requiring a finding of no harm to public health and safety, natural resources, and environmental quality prior to fracking.
- At least 60-day advanced prior notice to the public and actual written notice to nearby landowners and water users and providers.
- Disclosure and approval of sources and volumes of water used in fracking and disposition, volume, and composition of wastewater, including flowback and produced water associated with well stimulation operations.
- Groundwater testing performed prior to any well stimulation operations to establish baseline water quality and subsequent to all drilling and well stimulation.
- Air quality protections, including monitoring, containment, and limits on volatile organic compounds (VOCs), air toxics and greenhouse gas emissions.
- Green completions must be placed on all wells to prevent any flaring or venting of greenhouse gases.
- Limits on the use and injection of dangerous chemicals including a prohibition on the injection of diesel, BTEX, and other hydrocarbons.
- Advance public disclosure of chemicals which will be brought to a frack site to be injected, and reporting of chemicals actually used for the frack job.
- Monitoring to establish baseline ground movement and seismic activity and post fracturing seismicity in the surrounding area.
- Prohibition on fracking confidential/exploratory wells.
- Elimination of trade secret protections for the volumes and identities of chemicals injected into the ground.
- Public disclosure be posted on a state-run website, instead of a nationwide, industry-backed site such as FracFocus.
- Prohibition on fracking in or around sensitive areas including, but not limited to, the Pacific Ocean (offshore oil platforms), coastal estuaries, near residential areas, sensitive receptors (hospitals, schools, daycare facilities, elderly housing and convalescent facilities), sensitive ecosystems, wetlands, critical watersheds and groundwater recharge areas.
- Expansion of definition of “protected water” to include waters of all beneficial uses consistent with the Clean Water Act, Safe Drinking Water Act, and Porter-Cologne Act.

- Addition of the injection of unique tracers in every well field to facilitate ground water monitoring and tracing of any leaks.
- Requirements to prepare detail Injury and Illness Prevention Programs to protect workers' health and safety.

General Comments on the Safety of Fracking

Numerous comments continue to be circulated from both the oil industry and DOGGR claiming that fracking is safe and there is no “evidence” of problems in California. First, the oil and gas industry does not have a good track record of environmental protection. Accidents and the corresponding environmental damage from “conventional oil development,” both onshore and offshore, are fairly common, and often their reporting to the public is immediately curtailed through confidentiality agreements. While spectacular oil disasters such as the 1969 oil spill from Union Oil Platform A off the coast of Santa Barbara, the Exxon Valdez, and the Deepwater Horizon spill garnered national attention, many smaller incidents appear to be overlooked by regulators, as in Kern County in 2011.

For example, the injection of a product called “diluent” into UNOCAL’s oil field at the Guadalupe Dunes led to large scale contamination of the aquifers and drinking and irrigation wells in Northern Santa Barbara and Southern San Luis Obispo County.ⁱ Leaking storage tanks created a land-based plume that required the destruction of the main street and a significant portion of the town of Avila Beach in San Luis Obispo County for remediation.ⁱⁱ In Los Angeles County, well drilling operations and possibly fracking resulted in the release of a significant quantity of oil field gases (likely hydrogen sulfide) that sickened and forced the evacuation of entire neighborhoods. In Kern County, a cyclic steam operation resulted in a sudden unexpected sinkhole resulting in the death of an oil field worker.ⁱⁱⁱ

According to the Department of Conservation, fracking has occurred in some form in California for allegedly 50 years, without reported damage. This statement may demonstrate lack of regulatory oversight more than the safety of fracking, and past safety does not guarantee a future free of problems. Recent technological advances such as “slick” water treatments, multiple fracks, horizontal drilling, acid matrix fracking, and many others mean that today’s fracking cannot be compared with extractive techniques employed just ten years ago. These advances and others are key to exploitation of the Monterey Shale, and thus these new methods should be considered when regulating future hydraulic fracturing and the possible increase in extraction that may result.

Fracking has been linked to numerous problems in other states, including water and air contamination. For example, the Pennsylvania Department of Environmental Protection cited Cabot Oil and Gas for contaminating water resources in Dimock, Pennsylvania.^{iv} Fracking operations are strongly suspected to have contaminated drinking water wells in Pavillion, Wyoming, after water testing uncovered a chemical known as 2-BE, a chemical commonly used in fracking mixtures.^v Texas regulators have found high levels of benzene in the air near fracked wells in the Barnett Shale.^{vi} Such contamination has not been discovered through self-monitoring and reporting by the oil industry, and notably, the oil companies continue to deny their operations caused such contamination. Historic review of well records demonstrate well casing failures of approximately 6% within one year of drilling.^{vii} Thus, claims of physical integrity and the operational safety must be viewed with a healthy level of skepticism and require a high level of disclosure and independent verification.

There also are concerns about worker health and safety. They include hazards from the chemicals used, silica hazards, safety issues and the pressures of the work.²

Proper regulations that protect the public and workers from potential water and air contamination directly attributable to fracking and other underground injection processes designed to stimulate and enhance oil and gas production must be the paramount concern of regulators. Proper and timely disclosure of dates, locations, volumes and chemical compounds must be available if the public and regulators are to ensure that the proper parties are held accountable when the inevitable “accidents” or releases occur.³ There is no evidence that such common sense regulation would be unduly burdensome considering that the oil companies are already required to maintain material data safety sheets (MSDS’s) for all chemicals stored onsite. (See 14 Cal. Code Regs. 1722.9.) In addition, the chemical composition of all produced waters reinjected into the ground, which would include fracking wastewater, is also allegedly disclosed, without the assertion of trade secrets. (14 CCR 1724.7(c)(7); 14 CCR 1724.10(d).)

² Research being done by the National Institute for Occupational Safety and Health (NIOSH), at <http://www.cdc.gov/niosh/docs/2010-130/pdfs/2010-130.pdf>; OSHA's alert about silica levels (and the silica standard is way above what it should be, as they've been waiting for two years for other government agencies to pass the proposed standard), at http://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.html; and a recent article about oil and gas sector deaths in Texas: <http://fuelfix.com/blog/2013/02/18/eagle-ford-pay-is-high-but-work-can-be-fatal/>.

³ The oil industry claims that problems caused by fracking in other states stem from a few bad apples ignoring guidelines and best industry practices. Whether true or not, such statement emphasizes that full disclosure is absolutely necessary to protect the public and hold the “bad apples” accountable.

Second, we note that the regulations should not be limited solely to fracking and other stimulation techniques but should regulate all injection techniques designed to enhance oil and gas exploration and production, including the injection of corrosive or radioactive material, the use of explosive devices and all other techniques designed to fracture or otherwise increase the porosity and permeability of the production zone. This was the approach of Wyoming, which includes in its reporting requirements the disclosure of plugging back or drilling deeper, acidizing, shooting, formation fracturing, squeezing operations, setting a liner, gun perforating, or other similar operations not specifically covered herein, a report on the operation shall be filed with the Supervisor. Such report shall present a detailed account of the work done and the manner in which such work was performed; the daily production of oil, gas, and water both prior to and after the operation; the size and depth of perforations; the quantity of sand, crude, chemical, or other materials employed in the operation and any other pertinent information of operations which affect the original status of the well and are not specifically covered herein (WCWR 055-000-003, § 12.) Wyoming’s regulations also require the reporting of “the quantity of sand, crude, chemical or other materials...and any other pertinent information.” (Id.)

Third, the necessity of full, timely, public disclosure of the sources, volumes, and chemical makeups of fracking fluid is paramount in any regulation on fracking. As discussed in a report prepared by the Democratic members of the House Committee on Energy and Commerce, between 2005 and 2009, just fourteen different well drilling companies used 780 million gallons of fracking chemicals, which does not include the water added at the well site.^{viii} The report documented the use of over 750 different chemicals found in 650 unique frack fluid products injected into the ground. Twenty nine of these chemicals, are either: 1) known or possible human carcinogens; 2) regulated under the Safe Drinking Water Act for their risk to human health; or 3) listed as hazardous air pollutants under the Clean Air Act.^{ix} Trade secret claims appear to be abused to hide the identities of chemicals. As reported in Bloomberg News, in Texas more than one in five chemicals is claimed as a trade secret, severely limiting the effectiveness of any required reporting.^x As discussed below, we object to any “gag” rule preventing governmental regulators, physicians, researchers, or other investigators from discussing their findings on the health impacts from fracking. (Proposed regulation section 1788.1 - 1788.2.)

Interagency Cooperation

The Coalition strongly recommends a collaborative approach to regulating hydraulic fracturing. Cooperation between agencies is required to effectively protect California’s health, environment and natural resources. Prior to issuing any further draft regulations, we recommend that DOC consult with and receive full input from the following agencies: the

State Water Resources Control Board, the Regional Water Quality Control Boards, the Air Resources Board, the Air Quality/Pollution Management/Control Districts, the Department of Toxic Substances Control, and the Department of Public Health and the Department of Occupational Safety and Health (Cal/OSHA).

Analysis of discussion draft

The Coalition is pleased to have the opportunity to provide the following feedback on each section in the discussion draft. This portion of the letter repeats the language of the discussion draft regulations, section by section, then offers the Coalition's analysis and recommendations. Thank you for considering our requests and analysis.

1780. Definitions:

1780(a) "Chemical Disclosure Registry" means the chemical registry Internet Web site known as FracFocus.org developed by the Ground Water Protection Council and the Interstate Oil and Gas Compact Commission. If that Internet Web site becomes permanently inoperable, then "Chemical Disclosure Registry" shall mean another publicly accessible information Internet Web site that is designated by the Division.

Analysis/Recommendations

The Coalition objects to the use of the voluntary reporting website FracFocus.org as a registry for activities of the oil industry with regard to fracking. FracFocus is not a governmental organization and therefore does not require transparency, consistency, and verifications in its operation and management. Should FracFocus not provide complete, timely, or accurate information, it would be impossible to bring a lawsuit or a writ on behalf of public to compel proper disclosures. FracFocus is not governed by the California Public Records Act, the Federal Freedom of Information Act, nor the Brown Act. The management and operation of such website would be completely impenetrable and undiscoverable should the website operators decide to implement disclosure procedures that hinder public disclosure and investigation.

Problems with FracFocus are already readily apparent. There is no procedure for obtaining information in a manner that makes statistical analysis less burdensome. Currently, analysis of well records on FracFocus requires a well-by-well search for a PDF that contains a partially redacted list of fracking fluids. As indicated from the websites' frequently asked questions, there is no intention to make searching records any less burdensome. Thus, the operation of a

“Chemical Disclosure Registry” should be managed within DOGGR, DTSC or another California agency.

1780(b) “Health professional” means a physician, physician assistant, nurse practitioner, registered nurse, or emergency medical technician licensed by the State of California.

Analysis/Recommendations:

The Coalition objects to narrowly defining “Health Professional”. The purpose of this definition is to support the special disclosure and gag rule contained in proposed regulation 1788.2. Such definition would prevent the disclosure of chemicals to numerous types of professionals that may be conducting research into the health or environmental effects of water contamination, including, but not limited to, toxicologists, epidemiologists, chemists, biologists, botanists, and occupational health professionals. In addition, such definition would prevent disclosure to out of state researchers, such as pathologists and faculty physicians at major out-of-state universities, and to regulatory oversight agencies such as the Environmental Protection Agency. To the extent that trade secrets are a part of the regulations, any right to access to the trade secrets must, at a bare minimum, be open to professionals, regulators and others who have a legitimate need for such information to support health or environmental studies and investigations.

1780(c) “Hydraulic fracture” means a technique used in stimulating a formation or zone that involves the pressurized injection of hydraulic fracturing fluid and proppant into an underground geologic formation in order to fracture the formation, thereby causing or enhancing, for the purposes of this division, the production of oil or gas a well.

Analysis/Recommendations:

There appears to be unnecessary verbiage in this definition that may limit the applicability of the definition. For example, what is the purpose of defining hydraulic fracturing as a “technique” or identifying it as “stimulating” a formation or zone? Including the term “hydraulic fracturing fluid” may theoretically exclude fracturing techniques that solely use water without chemicals, despite the fact that fracturing a formation or zone may, in itself, have significant water quality/air quality or seismic impacts. Certain techniques, such as acid fracturing, may not use proppants, and therefore would be excluded and unregulated under the above definition. The coalition suggests a simpler definition:

(c) “Hydraulic fracturing” means the injection of fluids or gases into a formation or zone at a pressure that exceeds the fracturing pressure of the zone or formation for the purpose of enhancing oil or gas recovery.

1780(d): “Protected water” means water that either:

- (1) Contains no more than 3,000 mg/l total dissolved solids; or
- (2) Contains no more than 10,000 mg/l total dissolved solids and is suitable for irrigation or domestic purpose.

Analysis/Recommendations:

The definition of “protected water” appears to exclude significant potentially beneficial waters from protection. As stated in California’s Constitution: “[B]ecause of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented.” (Cal Const. Art. X § 2; See also Wat. Code § 100.)

While the proposed regulation defines “protected water” in a manner consistent with domestic water supply, there are significant other beneficial uses for waters that currently do not meet drinking water standards. (Water Board Resolution No. 89-39; Cal. Water Code § 13050.) Further, current technology demonstrates that both brackish and seawater can be treated to potable water standards. As water resources are becoming increasingly scarce, an even greater range of waters may be put to beneficial use.

The definition of “protected water” also excludes the Pacific Ocean, which is generally considered to have approximately 33,500 mg/l TDS. The Pacific Ocean clearly is entitled to protection from fracking. If “fracking” is as safe and controllable as the industry claims, then no groundwater or surface water of any quality or quantity should be threatened.

Furthermore, under the Safe Drinking Water Act, drinking water constitutes any water that has less than 10,000 mg/l total dissolved solids and not specifically exempted. (40 CFR 144.3) It would appear that the proposed regulation defining protected water as “suitable for irrigation or domestic purposes” creates an unacceptable, after-the-fact, judgment call on whether brackish waters are “protected waters” inconsistent with the SDWA. For the regulations to be certifiable and consistent with the SDWA, prior to excluding brackish waters from “protected waters”, there must be an application and public hearing seeking to exempt water resources from “protected waters” status.

1781. Well stimulation not an injection project.

Well stimulation operations, including hydraulic fracturing, are not underground injection or disposal projects and are not subject to Sections 1724.6 through 1724.10.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code.

Analysis/Recommendations:

The Coalition suspects that the purpose of defining “well stimulation operations” as something other than underground injection projects is because under the Safe Drinking Water Act and, independently, under the UIC program, all injection projects must obtain a permit prior to injection that complies with the UIC program requirements. (40 CFR 144.11; 14 Cal. Code Regs 1724.6.) By defining the process of fracking as “well stimulation” and not an underground injection project, DOGGR and the industry hopes to avoid the UIC program requirements providing, among other things, notice and transparency prior to fracking operations. Section 1781 is not in the interest of the people’s health, safety, and welfare.

The issue of whether fracking constituted underground injection was addressed in *Leaf v. EPA*. (*Legal Envtl. Assistance Found. v. United States EPA* (1997)118 F.3d 1467 (LEAF I).) In *LEAF v. EPA*, the 11th Circuit Court of Appeals found that wells being fracked constituted Class II injection wells. Alabama’s regulations, like California’s, did not regulate fracking, and therefore the court ordered the EPA to decertify Alabama’s UIC program. When Alabama subsequently prepared and submitted regulations which regulated fracking as “similar to Class II wells,” the Court again blocked certification of the program, finding that separate regulatory section that regulated fracking as a “Class II like activity” could not be certified under the EPA UIC program. (*Legal Envtl. Assistance Found. v. United States EPA* (2001) 276 F.3d 1253, 1264 (LEAF II).) The Court concluded, “In sum, we conclude that EPA's decision to classify hydraulic fracturing of coal beds to produce methane as a ‘Class II-like underground injection activity’ is inconsistent with the plain language of 40 C.F.R. § 144.6. Therefore, EPA's classification must be set aside.”

Subsequent to LEAF I and LEAF II, in what is has become known as the “Cheney Exemption” or “Halliburton Loophole”, Congress amended the Safe Drinking Water Act to exclude hydraulic fracturing “with the exception of diesel fuels.” (42 USC § 300h.) While perhaps hydraulic fracturing “with the exception of diesel fuels” may be excluded from the UIC program by means of new regulations, the federal Halliburton Loophole did not affect and certainly does not compel the exclusion of fracking regulations from the UIC program. A state’s regulatory program must meet the minimum requirements of the Safe Drinking Water Act, but may be stricter than the federal regulations. (40 CFR 145.11.) What this means is that there is nothing that compels California to exclude hydraulic fracturing from the UIC program. To the

contrary, given the high degree of risk inherent in the activity, fracking should be overseen under both the UIC program as well as the specific regulations proposed here. Undoubtedly, California citizens will object strongly to any regulations that carry over the “Halliburton Loophole” into California’s regulations.^{xi}

There is another basic reason that proposed regulation section 1781 is overly broad and ultimately uncertifiable by the EPA. Section 300(h) of the Safe Drinking Water Act does not exempt fracking with diesel fuels from its regulations. We consider that the current DOGGR approvals of high-pressure stimulation techniques are illegal in California because they do not follow the EPA UIC requirements. Our recommendation is that DOGGR must develop UIC-compatible regulations, which will bring all high-pressure stimulation techniques in California into compliance with UIC requirements. The Coalition also recommends that fracking with diesel be prohibited (we know that diesel fuel has been used in California due to research in 2011 by the Senate Energy Committee chaired by Congressman Waxman) and that regulation of fracking and other “well stimulation techniques” under the UIC program be retained.

DOGGR should also consider that the term “diesel fuels” in 42 USC § 300h does not appear to be defined, and therefore covers a large range of potential hydrocarbons. Any potential regulation that seeks to define “diesel fuels” in a narrow manner may have trouble obtaining certification by the EPA, and could be potentially subject to challenge. As discussed by the EPA, diesel fuels contain BTEX, which is a major concern in fracking operations.^{xii}

Section 1781 also does not solely exclude hydraulic fracturing from underground injection projects, but also any kind of “well stimulation operations.” Because “well stimulation” is not defined or limited in any manner, all manner of injection projects designed for “enhanced oil recovery” would now be excluded from the UIC program and thus the requirements of the Safe Drinking Water Act. Yet, the proposed regulations seek to solely regulate hydraulic fracturing. Again, this section does not comply with the SDWA and therefore is not certifiable by the EPA.

1782. General Hydraulic Fracturing Requirements.

(a) When hydraulic fracturing operations are conducted the operator shall ensure that all of the following occurs:

- (1) Casing be sufficiently cemented or otherwise anchored in the hole in order to effectively control the well at all times;
- (2) All protected water zones be isolated and sealed off to effectively prevent contamination or harm to any water therein;
- (3) All potentially productive zones, zones capable of over-pressurizing the surface casing annulus, or corrosive zones be isolated and sealed off to the

extent that such isolation is necessary to prevent vertical migration of fluids or gases behind the casing;

(4) All hydraulic fracturing fluids are directed into the zone(s) of interest;

(5) The wellbore's mechanical integrity be tested and maintained;

(6) The hydraulic fracturing fluids and proppants used are of known quantity and description for reporting and disclosure as required pursuant to this Article;

(b) In addition to specific methods set forth in these regulations, to achieve the objectives of this section, the operator shall follow the intent of all applicable well construction requirements, use good engineering practices, and employ best industry standards.

Analysis/Recommendations:

This section does not provide any methods to "ensure" compliance; no pre-fracking submissions of plans and data are required, no pre-fracking approval is called for, and actual occurrences apparently need not be reported. Yet, these steps are necessary as part of the notice/permit and as part of the History of Well and updates for Permits to Rework. In addition, the Coalition recommends specific language of what constitutes best practices that can be enforced in regulation to ensure the practices are actually followed.

(1) All beneficial waters and their containing systems must be protected, therefore cementing must be 100% of all annular spaces above the "Uppermost Hydrocarbon Horizon" (or zone, or layer, or formation) if not fractured, and if fractured, annular spaces must be cemented continuously from within 100 feet of the fracture zone to surface.

(5) As written, this section requires no testing or verification, does not provide for DOGGR inspection during the test, and can be easily falsified. Therefore, this item must require full 100% bond integrity logging and mechanical tests thereafter to the highest planned pressures to be exerted during any stimulation or other techniques for the well prior to fracturing techniques and within 24 hours thereafter following fracturing, as well as long-term ongoing monitoring.

The PXP Baldwin Hills study considered and included 100% cementing of ALL casings and annular spaces to be sufficient and thereby established a "Best Practical Control Method" which should be used for clear and adequate regulatory status in these amendments. By contrast, in DOGGR's proposed and existing regulations, casing cementation only applies to the "surface" casing and not to conductor, intermediate, and/or production casings, and thereby isolation cannot be demonstrated, verified, nor controlled as required both before and after fracturing.

The Coalition recommends consistent terminology be incorporated into the definitions section using a commonly accepted source of terms and definitions used in the industry, such as the Schlumberger Oilfield Glossary⁴ or the Dictionary of Petroleum Terms used by Federal OSHA⁵.

Subsection 1782(a)(6) should be rewritten to require records submission to DOGGR of planned and actually used chemicals and their eventual disposition.

The Coalition recommends that the Department revise this entire section and require the industry to provide the following information in Notices of Intent and History Reports for all wells:

- a. 100% annular space cementing, no annular mudding;
- b. Quantitative criteria for compliance demonstrated through calculations before fracturing and monitoring information during and after the fracturing and all to be submitted.
- c. Casing/Cementing/Bore Wall pressure and logging integrity testing before and after fracturing
- d. Microseismicity monitoring to demonstrate the direction of fracturing to the targeted unit;
- e. Fracture fluid budget: delivery, injected, and recovered/lost liquids and proppants and estimated volumes of chemicals.
- f. Regular reviews and testing to ensure no leaks throughout the entire lifetime of the well.

The Coalition believes that such revisions are necessary to ensure the safety of beneficial water, and to determine whether fracking has had any unintended consequences.

1783. Required Data Prior to Hydraulic Fracturing.

(a) The following data shall be submitted to the Division, and the appropriate regional water quality control board or boards with jurisdiction over the location of the well on a Form DOGGR HF1 at least 10 days prior to commencing hydraulic fracturing operations:

- (1) Operator's name;

⁴ Schlumberger Oilfield Glossary, available at: <http://www.glossary.oilfield.slb.com>

⁵ [Oil and Gas Well Drilling and Servicing eTool](http://www.osha.gov/SLTC/etools/oilandgas/glossary_of_terms/glossary_of_terms_a.html), available at: http://www.osha.gov/SLTC/etools/oilandgas/glossary_of_terms/glossary_of_terms_a.html

- (2) Name of person filing the form;
- (3) Telephone number of person filing notice;
- (4) Name of person to contact with technical questions regarding operations;
- (5) Telephone number and email address of person to contact with technical questions regarding operations;
- (6) Name of the well;
- (7) API number assigned to the well by the Division;
- (8) Name of the oil field;
- (9) County the well is located in;
- (10) For directionally drilled wells, the proposed coordinates (from surface location) and the true vertical depth at total depth;
- (11) Estimated true vertical depth;
- (12) The name of the productive horizon to be hydraulically fractured;
- (13) Anticipated volume and pressures of fluid to be injected;
- (14) Anticipated distance of the fracture;
- (15) The cement evaluation required under Section 1784(a)(3);
- (16) The fracture radius analysis required under Section 1784(a)(4); and
- (17) The hydraulic fracture treatment design required under Section 1784(a)(5).

(b) When hydraulic fracturing operations are performed in conjunction with the drilling, deepening, or re-drilling of a well, the completed Form DOGGR HF1 shall be submitted together with the notice of intent to commence drilling.

(c) The operator shall notify the Division at least 24 hours prior to commencing hydraulic fracturing operations. In no event shall hydraulic fracturing operations commence prior to the expiration of the 10 day period specified in subdivision (a) of this regulation.

(d) Within 7 days of receipt of a Form DOGGR HF1, the Division will post on its public website information about the well subject to hydraulic fracturing operations.

(e) Records submitted to the Division pursuant to this section will be presumed to be public records for the purposes of the California Public Records Act (Chapter 3.5 commencing with Section 6250) of Division 7 of Title 1 of the Government Code), unless the Public Resources Code section 3234 is applicable.

Analysis/Recommendations:

The Coalition recommends that the data should be submitted to the Division and Regional Water Quality Control Board (RWQCB) and any other appropriate agencies, and that the Division must make a determination that stimulation will have no negative impacts on health, the environment, or natural resources. If the Division cannot make the determination that the

project meets such requirements in a given timeframe, the application should be automatically denied.

The Coalition also recommends that Section 1783 require more than simply notification and default approval, but active approval of the well stimulation. The Division should make the following findings prior to approval of the “well stimulation:”

- a. The proposed well casing and cementing plan is sufficient to prevent casing failures for the life of the well, with adequate analysis of seismic potential to ensure well-casing integrity;
- b. No water that may be put to “beneficial use” will be threatened by the well stimulation process;
- c. The well stimulation will not release greenhouse gases or other air emissions hazardous to the health of the public;
- d. The well stimulation will not increase seismicity to faults in a manner that will cause property damage, or significant upset;
- e. A sufficient bond has been submitted to cover all expenses for repairing, remediating or abandoning all wells, including reasonable funds necessary to implement and monitor any remediation plan created pursuant to section 1784(a)(3).
- f. The total amount and source of carrier fluid (*i.e.*, water) will not diminish, interfere, or compete with supplying sufficient water for municipal and irrigation uses and if drawn from an aquifer, when combined with other water demands, will not result in a withdrawal in excess of the recharge rate of the aquifer.
- g. A monitoring plan is in place that adequately monitors water flows, pressures, quality, fugitive emissions, and seismic activity for the life of the well and field.
- h. A waste disposal plan is in place and approved by the appropriate Regional Water Board that will ensure safe disposal of all produced water, flowback and any other waste associated with drilling or stimulation.
- g. Baseline water and air quality data has been established before fracking, and will be monitored and compared with conditions thereafter.

1783(a)

In addition to changing the default result of Division inaction from approval to denial, the Coalition also recommends the following additions to the required data on HF1:

- (1) Operator’s name, *addresses, and contact*;
- (2) Name of person, *company, and whether operator/contractor/consultant* filing the form;
- (3) Telephone number, *address, and email addresses* of person filing notice;

- (4) Name of person to contact with technical questions regarding operations *and whether operator, contractor, or consultant*;
- (5) Telephone number, *address*, and email address of person to contact with technical questions regarding operations;
- (6) Name of the well;
- (7) API number assigned to the well by the Division;
- (aa) *Names of Lease(s), Area, Pool(s), and horizon(s) or zone(s)*;
- (8) Name of the oil field;
- (9) County *and township, range, section, and quarter-quarter, and Latitude/Longitude* of the well is located in;
- (bb) *Type of well - injection, disposal, flood, monitoring, or producer.*
- (10) For directionally drilled wells, the *proposed* coordinates (from surface location) and the true vertical *and measured* depth at total depth of bore and casing/screen-perforations;
- (11) Estimated true vertical depth;
- (12) The name *and true and measured levels* of the productive horizon, *zone, or pool* to be hydraulically fractured;
- (13) Anticipated/*Planned* volume and *surface and target-depth* pressures of fluid to be injected;
- (cc) *Amounts, sources and disposition of fluids used in fracturing.*
- (dd) *Complete list of chemicals, including identities and volumes, that will be transported to the well site and injected.*
- (14) Anticipated *planned* distances/*radius* of the fractures *and drainage of formation*;
- (15) The cement evaluation required under Section 1784(a)(3);
- (16) The fracture radius analysis required under Section 1784(a)(4); and
- (17) The *hydraulic* fracture treatment design required under Section 1784(a)(5).
- (ee) *Depths of the Base of Fresh Water, protected/usable/beneficial/useful as determined by bore logging*;
- (ff) *Depths of Uppermost Hydrocarbon Zone*;

1783(b)

The Coalition recommends that this section be amended to read:

When hydraulic fracturing operations are performed in conjunction with the drilling, reworking, deepening, redrilling, and/or abandonment of a well, the completed Form DOGGR HF1 shall be submitted together with the notice of intent to commence drilling, *reworking, deepening, redrilling, or abandonment.*

1783(c)

The Coalition recommends that the operator notify the Division at least 60 business days prior to commencement of fracking operations or other well stimulation. In addition, 1783(c) should

require the operator to notify other interested parties, including local governments, water suppliers and users of potentially affected water sources, nearby residents and other regulators. Such notice is important to ensure that other regulators, such as the relevant Air Quality Management District and Regional Water Quality Board have the opportunity to witness and monitor all fracking or other well stimulation operations and that potentially affected parties can plan accordingly.

1783(d)

As currently written, 1783(d) would give the public potentially only three days notice of proposed fracking operations. Thus, if timed correctly, DOGGR HF1 could be submitted on a Friday, DOGGR could post the information at 4:59 on the following Friday afternoon, and the public would only have a Monday to submit objections to prevent fracking operations from occurring.

What the regulation essentially does is prevent anyone from receiving notice of and inquiring about fracking operations. Let us presume that an unscrupulous operator submits an HF-1 to frack a well only 100 feet from an elementary school. The elementary school or their parents would only potentially obtain notice on Friday afternoon (assuming they check the DOGGR website at close of business every Friday), would have to recognize the risk, hire an attorney, and file for injunctive relief, and obtain a TRO hearing all on Monday morning, so as to serve the TRO (if granted) on the oil company prior to commencement of fracking operations on Tuesday. In reality, the proposed regulation would make it procedurally impossible to prevent a fracking operation regardless of egregious risks and actions. Such regulation, as currently proposed, is unconscionable in its lack of real notice to the public and adjacent owners prior to the commencement of fracking operations. A notice of 60 business days should be required for adequate protection of public health and welfare and to meet the intent of providing notice- i.e. to provide affected parties an opportunity to respond.

In addition to Internet notice, a written notice should be mailed to each landowner in close proximity to the proposed well and to any water purveyor that uses the groundwater that will be drilled through. Oil and gas drilling is an industrial process that has risks and neighbors should have the right to know it is going to occur without monitoring the DOGGR website for announcements. This is standard operating procedure for almost all local and state agencies when a development project is proposed.

1783(e)

The Coalition objects to applying the terms of Public Resources Code section 3234 to any operations that include fracking or well stimulation operations. PRC 3234 permits an oil company to request in writing that a well and well operations to be kept confidential for a period of 4 years upon extenuating circumstances. “Extenuating circumstances” is not defined,

and could potentially include drilling in sensitive habitat areas or near sensitive receptors (ie. schools.). Extenuating circumstances could potentially be based on the public outcry against fracking operations. Thus, 1783(e) could potentially destroy any public notice provisions contained in the draft regulations.

The Coalition believes that any time an operator wishes to inject toxic chemicals into the ground creating the potential to contaminate water or air from such operations, or engage in activities which may induce seismic events, that the details of such operations should not be withheld from the public.

In addition, such regulation potentially covers up damage caused by increased seismicity potentially caused by fracking. An area that is suddenly suffering from increased seismicity will be unable to determine or prove whether recent fracking operations have contributed to such damages. It is believed by some experts that the fracking and recent drilling operations at the Inglewood Oil Field has increased the seismicity causing damage to the adjacent neighborhoods in Los Angeles County and Culver City. Section 1783(e) could deprive people the opportunity to discover whether fracking is a potential cause of such damage, insulating the party most responsible for such damage.

1784. Evaluation Prior to Hydraulic Fracture

- (a) The operator shall do all of the following prior to commencing hydraulic fracturing operations:
- (1) All cemented casing strings and all tubing strings to be utilized in the hydraulic fracturing operations shall be pressure tested for at least 30 minutes at a pressure not less than 500 psi greater than the maximum surface pressure anticipated during the hydraulic fracture operations. If during testing there is a pressure drop of 10% or more from the original test pressure, then the tested casing or tubing shall not be used until the cause of the pressure drop is identified and corrected. No casing or tubing shall be used unless it has been successfully tested pursuant to this section.
 - (2) All surface equipment to be utilized by operator for hydraulic fracturing treatment shall be rigged up as designed. The pump, and all equipment downstream from the pump, shall be pressure tested to at least 110% of the maximum allowable surface treating pressure.
 - (3) Allowing at least 48 hours to elapse after cement placement, the operator shall run a radial cement evaluation log or other cement evaluation method that is approved by the Division and capable of demonstrating adequate cementing. If the quality of the cement outside of the production casing is not sufficient to isolate strata containing protected water, then the operator

must develop a remediation plan and obtain approval from the Division for the remediation plan prior to proceeding. The operator is only required to evaluate the cement that is required to be in place under Section 1722.4.

- (4) The operator shall conduct a fracture radius analysis to verify that no fracturing fluids or hydrocarbons will migrate into a strata or zone that contains protected water.
 - (i) The operator shall utilize modeling approved by the Division that will effectively simulate the projected fracture height growth within the design limits of the projected hydraulic fracturing operations.
 - (ii) The fracture radius analysis shall include a review of all wells and faults (active or inactive) within a radius of twice the anticipated fracture length from each point of fracture to verify that no wells or faults will permit the migration of the fracturing fluids or hydrocarbons into a strata that contains protected water.
 - (iii) If a radius of twice the anticipated fracture length from a point of fracture extends beyond the productive horizon being evaluated for possible hydraulic fracture, then the fracture radius analysis shall include a review of the geological formations between the productive horizon and the base of the deepest stratum or zone that contains protected water. The operator shall assess the mechanical rock properties, including permeability, relative hardness (using Young's Modulus), relative elasticity (using Poisson's Ratio), and other relevant characteristics of the geological formations to determine whether the geological formations will ensure proper containment of the hydraulically induced fracture and act as an effective barrier to the vertical migration of fluids into one or more strata or zones that contain protected water.
- (5) Utilizing the fracture radius analysis conducted pursuant to subsection (a)(4), the operator shall design the hydraulic fracturing treatment so as to ensure that the fracturing fluids or hydrocarbons do not migrate and come in contact with a strata or zone that contains protected water.

Analysis/Recommendations:

The Coalition recommends that regulations must require DOGGR to review, evaluate, and approve the test results and analyses required under this section before allowing proposed the hydraulic fracturing operation(s) to proceed. Operators also should be required to submit

Illness and Injury Prevention Programs to Cal/OSHA and DOGGR as part of the permit approval process.

DOGGR must require the operator to submit all technical materials under this section at least sixty (60) days before DOGGR approves any permit to drill, rework, deepen, or redrill for a well that will be hydraulically fractured. If DOGGR does not approve the permit within sixty days, the application is denied.

The operator must be required to submit results from all of the tests and evaluations required under this section to DOGGR. As currently proposed under section 1783(a), the operator need only submit results from three of the five analyses to DOGGR.

Under proposed sections 1783(a) and (d), the public would have as little as three (3) days to review information disclosed under this section about proposed hydraulic fracturing operations before those operations take place. This timeframe is inadequate and must be expanded significantly to ensure that communities have enough time to review and evaluate this information. Regulations must provide for a minimum of 60 days for posting and comments, and then DOGGR determination as to supplemental notices for the applicant to submit.

1784(a)(1):

This subsection is misleading as the “cemented casing string” is defined in a different section that is not referenced. The first sentence should reflect that all well casings and tubing, from the fracture target unit to the surface, must have tested cement/casing/bore integrity before and after fracturing.

The Coalition also believes that testing done without notice and/or the presence of a DOGGR inspector is insufficient to ensure that potential problems are identified and reported. There must be a means of verification of the testing. The Coalition recommends the regulations require inspection and not just notice of testing.

Under the current standard practice in the industry, less than 10% of the entire casing (*e.g.*, 500 ft in a 5,000 ft well) may be cemented. With the mechanical well pressure “testing,” the operator may assume that the Mechanical Well Pressure Test would satisfy such requirements. However, the Mechanical Well Pressure Test may not apply or accurately identify potential problems after perforation.

1784(a)(2):

The regulation should explicitly require documentation of pressure testing of all pumping and treatment equipment. Such testing logs should be maintained at the drill site or oil field and be available to DOGGR immediately upon request.

1784(a)(3):

The Coalition objects to the language “If the quality of the cement outside of the production casing is not sufficient to isolate strata containing protected water, then the operator must develop a remediation plan and obtain approval from the Division for the remediation plan prior to proceeding.” Such language permits an operator to conduct fracking operations despite risking the contamination of “protected water.” There should be no fracking operations or other well stimulation techniques that potentially contaminate any source of water that could be put to beneficial use.

We agree, however, with the requirement to create a remediation plan. Thus, we suggest the following changes:

“The operator must demonstrate the cement is sufficient to isolate strata containing protected water, and must develop a remediation plan and approval from the Division for the remediation plan prior to proceeding.”

The Coalition also objects to solely requiring cementing pursuant to section 1722.4. Fracking is a high pressure process that creates enormous strain on the well casing and cement. Section 1722.4 is intended to regulate casings in regular production wells. The cementing requirements should be at least as strict as those for Class II injection wells, with cemented casing both above and below each water bearing strata, and requiring cementing at all faults and at the intersection between each of the zones.

According to a recent study from Cornell University between 6% and 9% of fracked wells in the Marcellus Shale experience integrity problems.^{xiii} There has been no attempt to determine the percentage of casing failures on wells that have been fracked in California. If it is assumed that 6% of all wells will experience some mechanical integrity problems at some time, then the regulations for wells that are intended to be fracked must be substantially stricter. Section 1722.4 solely requires cement 500 feet above the oil and gas (production) zones and 100 feet above any freshwater zone. This is insufficient to protect the public and environment.

A limitation to only section 1722.4 cementing changes the entire logging to only pre-fracturing conditions of some restricted interval of "strata" containing groundwater of <10,000 ppm TDS, and not the greater interval of the intermediate casing, if present, to the uppermost hydrocarbon zone, which may include a large portion of "non-protected groundwater" that may directly communicate with the protected water.

Section 1722.4 only applies to the surface casing cementing and not to that for the conductor or deeper intermediate and production casings. All cementing must be subject to this requirement, as annular leakage to the base of the surface casing could exert far greater pressures than that of the formula (*e.g.*, 120 psi).

Section 1722.4 also only refers to the "base of freshwater" and does not refer to protected, beneficial, or useful waters. Recently, the EPA criticized California's UIC program stating that the regulations were insufficient to protect all beneficial use waters. Section 1722.4 is not sufficiently protective for ensuring well integrity during and after fracking operations.

1784(a)(4):

The requirement of an "analysis" implies that a design or plan has been completed but has not been included as part of the operator's submittals in the notice of intent for permit to drill, rework, etc. DOGGR should require all designs and analyses to be submitted as part of the operator's initial permit application.

Modeling of radii without later heights and orientation is not verification and is not a substitute for monitoring during actual operations. Similarly, modeling of fracturing herein does not include effects on casings, cementing, and bore walls.

1784(a)(4)(i):

Models are not listed, nor are examples provided. No documentation or submission is required. Because no process of approval or criteria for approval is provided, this subsection is arbitrary and incomplete. It must be completed in the next draft.

1784(a)(4)(ii):

The language is vague as to what means of verification are to be used, and what specific supporting documentation is to be submitted.

No information is required to document "strata that contains protected water," *i.e.*, depths and surface of "protected water" and "strata" containing such water. This subsection is incomplete and must be completed in the next draft.

1784(a)(4)(iii):

No information is required to document "strata or zones that contain protected water," *i.e.*, depths and surface of "protected water" and "strata" containing such water. There is no indication as to how the "deepest stratum", Base of Fresh Water, or Uppermost Hydrocarbon Zone will be established and delineated. Before fracturing, physical measurement of deepest levels of "protected water", both <3000 and <10,000ppm TDS should be required.

The Coalition also would suggest adding the following subsection:

1784(a)(4)(iv) The operator shall maintain a copy of the report and any supporting material for a period of at least 10 years and shall submit a copy of such report and any supporting material to the Division.

1784(a)(5):

The design of the hydraulic fracturing “treatment” should be submitted initially as part of the notice of intent.

1785. Monitoring During Hydraulic Fracturing Operations

(a) The operator shall continuously monitor all of the following parameters during hydraulic fracturing operations:

- (1) Surface injection pressure;
- (2) Slurry rate;
- (3) Proppant concentration;
- (4) Fluid rate; and
- (5) All annuli pressures.

(b) The operator shall terminate hydraulic fracturing operations and immediately report it to the Division if any of the following occur:

- (1) A production-surface casing annulus pressure change of 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion;
- (2) Pressure exceeding 80% of the API rated minimum internal yield on any casing string in communication with the hydraulic fracturing treatment;
- (3) A post hydraulic fracturing fluid volume returns to surface that is in excess of a volume that could reasonably be expected due to pressure or temperature expansion;
- (4) The operator has reason to suspect any potential breach in the production casing, production casing cement, or isolation of any sources of protected water.

(c) If any of the events listed in subdivision (b) occur, then the operator shall perform diagnostic testing on the well to determine whether a breach has occurred. Such testing shall be done as soon as is reasonably practical. If the testing reveals that a breach has occurred then the operator shall immediately shut-in the well, isolate the perforated interval, and notify the Division.

(d) If the surface casing annulus is not open to atmospheric pressure, then the surface casing pressures shall be monitored with a gauge and pressure relief device. The maximum set pressure on the relief device shall be the lowest of the following and

hydraulic fracturing operations shall be terminated if pressures in excess of the maximum set pressure are observed in the surface casing annulus:

- (1) A pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet);
- (2) 70% of the API rated minimum internal yield for the surface casing; or
- (3) A pressure change that is 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion.

Analysis/Recommendations:

1785(a):

Slurry is a new introduction for frac-fluids and should be replaced by fluid; it appears to be equivalent to fluid flow rate.

There are no requirements for fluid characterization other than for suspended solids (proppant concentration). DOGGR should also require monitoring for TDS, pH, and temperature.

Monitoring "all parameters" must include pressure monitoring of all annuli: tubing/production casing, production/intermediate casings, intermediate/surface casings, and surface/conductor casing.

1785(b):

Standard casing sequence of conductor, surface, intermediate, and production is not followed. Add intermediate casing annuli to (b)(1).

Requirements suggest a need for real-time continuous monitoring of pressures and temperatures, but without specifically including such and continuous comparisons with calculated changes. In addition, the regulation should require recording of such information and for its submission to the Division to demonstrate that such monitoring and comparisons have been performed.

DOGGR should add a criterion reflecting loss of circulating and flowback fluids indicating leakage to formation or annular spaces:

- (b)(5) Hydraulic fracturing fluid volume returns to surface are less than 50% of the expected flowback/return of a volume that could reasonably be expected due to pressure or temperature expansion.

1785(c):

The Coalition suggests the following change:

If any of the events listed in subdivision (b) occur, then the operator shall perform diagnostic testing on the well to determine whether a breach has occurred. Such testing shall be done as soon as is reasonably practical. *The operator shall provide notice to the Division of results of the testing and the explanation of the anomalous results.* If the testing reveals that a breach has occurred then the operator shall immediately shut-in the well, isolate the perforated interval, and notify the Division.

Anomalies in the well pressures indicated a dangerous situation during operation of the Deepwater Horizon in the days and hours prior to the massive blowout that killed eleven oil platform workers and resulted in the largest offshore oil spill in the history of the United States.^{xiv} These anomalies were ignored or discounted by BP and the operator. Requiring a report to be submitted to the Division upon discovery of any of the listed anomalies provides additional oversight, regardless of whether a breach has occurred, and will provide an extra layer of safety. The Division may disagree with the findings of the operator that no breach occurred, or may be able to identify a potential dangerous situation if fracking or other stimulation operations were to resume, and therefore could act to avoid a potential disaster.

1785(d):

Other sections indicate that this annular space can/may be fully cemented.

Ill-defined relations exist between surface and conductor casings and blowouts could occur from the surface casing external annulus through the conductor casing to the soil/alluvium surrounding the well.

DOGGR must clarify which annuli (Conductor-Surface, S-Intermediate, or I-Production casings annuli) are not open, since other statements indicate the valve can be left open to the atmosphere.

1786. Storage and Handling of Hydraulic Fracturing Fluids.

- (a) Operators shall adhere to the following requirements for the storage and handling of fluids associated with hydraulic fracturing being stored at the wellsite, including hydraulic fracturing chemicals in concentrated and mixed form and hydraulic fracture fluid flowback, but not including freshwater:
 - (1) Non-freshwater fluids associated with hydraulic fracturing operations shall be stored in compliance with the secondary containment requirements of Section 1773.1.

- (2) Operators shall be in compliance with all applicable testing, inspection, and maintenance requirements for production facilities containing hydraulic fracturing fluids.
- (3) Non-freshwater fluids associated with hydraulic fracturing operations shall be accounted for in the operator's Spill Contingency Plan;
- (4) Non-freshwater fluids associated with hydraulic fracturing operations shall not be stored in unlined sumps or pits;
- (5) In the event of an unauthorized release, the operator shall perform clean up and remediation of the area in compliance with all applicable federal, state, and local laws and regulations.
- (6) Within 5 days of the occurrence of an unauthorized release, the operator shall provide the Division a written report that includes:
 - (A) A description of the activities leading up to the release;
 - (B) The type and volumes of fluid released;
 - (C) The cause(s) of release;
 - (D) Action taken to stop, control, and respond to the release; and
 - (E) Steps taken by the operator to prevent future releases.

Analysis/Recommendations:

1786(a)(2)

The term "production facility" has a specific connotation in the industry, which would not seem to apply to the temporary nature of fracking operations on a well pad. To the extent that the regulation is stating that the fracking operations must comply with all the safety rules outlined for production facilities (e.g., 14 CCR 1773.1 et. seq.), the Coalition finds the regulation acceptable. Please clarify the intent of this section.

1786(a)(3)

The Coalition would recommend identifying Section 1722 to clarify that the fracking chemicals must be accounted for in the official spill contingency plan filed with DOGGR.

1786(a)(4)

The term "non-freshwater fluids" is used throughout this section. It should be clarified that non-freshwater includes produced water or any other water that is not currently potable. This will prevent any confusion as to the storage of produced water or flowback from fracking that could theoretically be used for additional fracking operations.

1786(a)(6)

The Coalition strongly objects to the operator having five days to notify DOGGR and produce a report. The unauthorized release should be immediately reported to the Division and any

necessary emergency personnel with the required information. A written report should be submitted within 48 hours of the initial release. Significant fines should be imposed for the failure to timely report unauthorized releases.

Immediate reporting is necessary to ensure that significant oil field spills are disclosed and investigated prior to completion of clean-up. In addition, immediate reporting ensures that clean-up is done in the most environmentally responsible manner. The regulation, as proposed, will encourage operators to downplay the environmental or health consequences of any releases, and prevent investigation of damages caused by shoddy workmanship or lax oil-field procedures. This is particularly important in the context of hydraulic fracking where the fracking operations may take less than five days to complete.

The Coalition also recommends an additional subsection to proposed section 1786:

(a)(7) The Division shall investigate all unauthorized releases as soon as possible, and no later than 48 hours after the initial notification of an unauthorized release. The investigator shall post the results of the investigation on the DOGGR website.

1787. Well Monitoring After Hydraulic Fracturing.

- (a) Operators shall monitor each producing well that has had hydraulic fracturing operations to identify any potential problems with a well that could endanger any underground source of protected water. If there is any indication of a well failure, the operator shall immediately notify the Division and perform diagnostic testing on the well to determine whether a well failure has actually occurred. If the testing indicates that a well failure has occurred, then the operator shall immediately take all appropriate measures to prevent contamination of all underground sources of protected water and all surface waters in the area of the well.
- (b) Operators shall adhere to the following requirements for a well that has had hydraulic fracturing operations:
 - (1) The well shall be monitored on a daily basis for the first thirty days after hydraulic fracturing operations and on monthly basis thereafter for the following:
 - (A) The amount of gas, oil and water produced, including readily identifiable hydraulic fracture fluid flowback volume;
 - (B) The annular pressure of the well;
 - (C) The internal tubing pressure of the well; and
 - (D) The casing pressure of the well.

- (2) Monitoring data shall be maintained for a period of at least 5 years after hydraulic fracturing operation and shall be made available to the Division upon request.
- (3) The annular pressures of the well shall be reported to the Division annually. It shall be immediately reported to the Division if annular pressure exceeds 70 per cent of the API rated minimum internal yield or collapse strength of casing, or if surface casing pressures exceed a pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet).
- (4) The annular valve shall be kept accessible from the surface or left open and plumbed to the surface with working pressure gauge.
- (5) A properly functioning pressure relief device shall be installed on the annulus between the surface casing and the production casing, or, if intermediate casing is set, on the annuli between the surface casing and the intermediate casing and the production casing. This requirement may be waived by the Division, if the operator demonstrates to the Division's satisfaction that the installation of a pressure relief device is unnecessary based on technical analysis and/or operating experience in the area.
- (6) If a pressure relief device is installed, then all pressure releases from the device shall be reported to the Division within 24 hours of detection. The maximum set pressure of a surface casing pressure relief device shall be the lowest of the following:
 - (A) A pressure equal to: 0.70 times 0.433 times the true vertical depth of the surface casing shoe (expressed in feet);
 - (B) 70% of the API rated minimum internal yield for the surface casing; or
 - (C) A pressure change that is 20% or greater than the calculated pressure increase due to pressure and/or temperature expansion.

Analysis/Recommendations:

1787(a)

The above regulation concentrates on potential problems "that could endanger any underground source of protected water". However, hydraulically fractured wells can have a whole range of problems that may be injurious to health or the environment without endangering underground sources of protected water. For example, a well casing failure could occur that results in the release of large quantities of hydrogen sulfide (a toxic gas) or methane (potentially explosive and a potent global warming agent) without threatening underground source of protected water. Language must be added to include any issues potentially injurious to public health or the environment.

1787(b)

The Coalition is uncertain about the meaning of “readily identifiable” hydraulic fracture fluid. While the Coalition believes that it is important to identify the volume of hydraulic fracture fluid that remains unaccounted after fracking, it is not clear why the regulation uses the term “readily identifiable” instead of simply “hydraulic fracture fluid flowback volume.”

In addition, there are multiple locations along the well bore that could be tested for pressure. According to the schematics of a well casing, there is the conductor casing, surface casing, intermediate casing, production casing and annular spaces.^{xv} The regulation should specify either that the entire casing must be monitored or that specific areas known to be problematic must be monitored.

1787(b)(2)

The Coalition believes that monitoring data should be submitted to the Division on a quarterly basis, and posted on a publicly available website.

1787(b)(4)

The Coalition does not understand the advantage of providing the option of leaving the annular valve open. Leaving the annular valve open would potentially permit the continuous release of hydrocarbon gases into the atmosphere, and perhaps even permit the release of liquids. DOGGR should prohibit any fugitive emissions and require that all gases be captured and processed.

1787(b)(6)

The operator should report all pressure releases (ie. fugitive emissions) immediately to the Division and appropriate air quality related agencies. The importance of reporting fugitive emissions immediately is demonstrated by the blow-outs at the Inglewood Oil Field in January and February of 2006, where entire neighborhoods were evacuated. Providing a 24 hour reporting window provides an avenue for oil companies to avoid liability for releasing hazardous chemicals into the air. Proper air quality monitoring of the release can only occur when the release is ongoing.

1788. Required Public Disclosures.

(a) Except as provided in subdivision (c), within 60 days after the cessation of hydraulic fracturing operations, the operator shall post to the Chemical Disclosure Registry all the following information that is not claimed as a trade secret pursuant to Section 1788.1:

- (1) The well operator’s name
- (2) The hydraulic fracturing date.
- (3) The county in which the well is located.
- (4) The well API number.

- (5) The well name and number.
 - (6) The location of the well, submitted as a non-projected, Latitude Longitude, in the General Coordinate System (GCS) NAD83.
 - (7) The true vertical *and measured* depth of the well.
 - (8) The name of the productive horizon to be hydraulically fractured;
 - (9) A complete list of the names, CAS numbers, and maximum concentration, in percent by mass, of each chemical added to the hydraulic fracturing fluid. Where the CAS number does not exist for a chemical, the operator may provide another unique identifier where available.
 - (10) The trade name, supplier, and a brief description(s) of the intended purpose of each additive contained in the hydraulic fracturing fluid.
 - (11) The total volume of carrier fluid used *and lost* during hydraulic fracturing.
 - (12) The disposition of the carrier fluid used to conduct hydraulic fracturing.
 - (13) Any radiological components or tracers injected into the well as part of the hydraulic fracturing process, a description of the recovery method, if any, for those components or tracers, the recovery rate and the disposal method for recovered components or tracers.
 - (14) The estimated volume of hydraulic fracture fluid flowback that has been recovered.
- (b) If the Chemical Disclosure Registry is unable to accept and make publicly available any of the information specified in this section, then the operator shall submit the information to the Division.
- (c) Operators are not required to post information to the Chemical Disclosure Registry if the information is found in a well record that the Division has determined is not public record, pursuant to Public Resources Code section 3234. If information listed in subsection (a) is not posted to the Chemical Disclosure Registry on this basis, then the operator shall inform the Division in writing, specifying the information that is not being publically disclosed. It is the operator's responsibility to post the information to the Chemical Disclosure Registry once the information becomes public record under Public Resources Code section 3234.

Analysis/Recommendations:

The coalition recommends the following additions to 1788.

(a): Define what “cessation of hydraulic fracturing” means exactly. We note that produced water may include flowback waters many weeks after the “cessation” of fracking.

- (1) The well operator's name *and company*.
- (2) The county *and township* in which the well is located.
- (8) The name of the productive horizon *that was actually* fractured.

(11) The total volume and source (including water supplier and source) of carrier fluid used *and lost* during hydraulic fracturing.

(14). The estimated volume of hydraulic fracture fluid flowback that has been recovered, *broken down by recovery method and timeline*.

(15) *The number of workers employed by the operator and its sub-contractors.*

1788(c):

The Coalition objects to the use of Public Resources Code section 3234 to prevent disclosure of a well and well stimulation operations injecting chemicals. Such confidentiality creates a giant loophole in all the regulations, making it impossible to know whether fracking is occurring in the neighborhood and to what extent.

1788.1. Claims of Trade Secret Protection.

(a) Operators are not required to post trade secrets to the Chemical Disclosure Registry.

An operator who, on the basis of a claim of trade secret protection, withholds information that is otherwise required to be posted to the Chemical Disclosure Registry shall submit the following to the Division within 60 days after the cessation of hydraulic fracturing operations:

- (1) Identification of the information withheld as protected trade secret in a manner that does not itself disclose information subject to a claim of trade secret protection. If the withheld information includes the identity of a chemical, the identification shall include the chemical family or similar descriptor for the chemical.
- (2) The name, mailing address, phone number of the contact person for the person or entity who holds the withheld information and is asserting the claim of trade secret protection.
- (3) A declaration under penalty of perjury by the holder of the withheld information that affirms or otherwise addresses, and provides specific information regarding, the following:
 - (A) The information identified in paragraph (1) was withheld as protected trade secret information, as defined in Civil Code section 3426.1, subdivision (d), or Penal Code section 499c
 - (B) The holder of the withheld information has not disclosed it to another person, other than a member of a local emergency planning committee, an officer or employee of the United States or a state or local government, an employee of those entities, or a person who is bound by a confidentiality agreement, and that person has taken reasonable measures to protect the confidentiality of the information and intends to continue to take measures, or disclosure has otherwise been limited so that the information is not readily available to competitors;

- (C) The information is not required to be disclosed, or otherwise made available, to the public under any other federal or state law;
 - (D) Disclosure of the information would harm the competitive position of the disclosing person or entity; and
 - (E) The information is not readily discoverable through reverse engineering.
- (b) The holder of the withheld information shall ensure that the Division is informed of any changes to the information required in subsection (a)(2).
- (c) Information withheld on the basis of a claim of trade secret protection shall be replaced by posting text to the Chemical Disclosure Registry indicating information has been withheld as trade secret information and, if the withheld information includes the identity of a chemical, providing the chemical family or similar descriptor associated with the trade secret constituent.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code; Section 1060, Evidence Code; Section 3426.1, Civil Code; Section 499c, Penal Code.

Analysis/Recommendations

The Coalition objects to use of trade secrets for chemicals or chemical combinations that have the potential, through mistake, accident, negligence, or otherwise to contaminate groundwater, surface water, or impact air quality and/or to harm workers. Maintaining and protecting ground and surface water and air quality and workers' health and safety is in the vital interest of California. Permitting unknown chemicals to be injected under a claim of "trade secrets" is counter to the health of the public workers and the environment.

We object to any information being placed on FracFocus instead of being provided to the Division for public disclosure. The Division is a public agency regulating an industrial process and we expect the details of that regulation to be made available to the public, as is the case with other state agencies. Regulators, health officials, and the public must have ready access to the information. We do not expect a non-governmental agency to be able to receive and share this information in the same manner as an agency of the State of California, because this third party is not accountable to the public. We note that there are currently many problems with the way that FracFocus provides information, to the extent that such information can be relied upon. For example, the information on FracFocus is not readily downloadable and searchable for use in cross-sectional analysis, either by chemical constituents or by geography. A public user of FracFocus must search well-by-well, on a county-by-county basis. All information is provided in a PDF format making it time-consuming to compile for analysis. The actual volume of the various chemicals in gallons or liters is unavailable. Numerous chemicals are

identified simply as “confidential business information” without any information as to the basis of the asserted confidentiality.

By affording trade secret protection to fracking fluids, there is the possibility of contamination going undetected for extended periods of time, and only becoming discoverable because of clusters of medical problems, drinking water contamination, or agricultural irrigation water contamination. Even then, it is difficult to identify contamination if water quality inspectors are not testing for the specific chemicals contained in fracking fluid.

If the regulation must include any kind of trade secret protection, the only information that is subject to protection as a trade secret is that which would meet the definition set forth in the California Uniform Trade Secret Act, Civil Code section 3426.1, which defines a trade secret as:

...information, including a formula, pattern, compilation, program, method, technique, or process that (i) derives independent economic value, actual or potential, from not being generally known to the public or other persons who can obtain economic value from its disclosure or use; and (ii) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Trade secret protection must be sought prior to fracking, and be submitted for review by the Division for a determination of the validity of such claim. The burden must be on the operator or other entity seeking to protect the information to justify and prove that the information qualifies as a trade secret and maintaining such secrecy will not compromise public safety. The Division should review trade secrets claims to determine whether they are adequately justified using the following criteria (based on California’s Uniform Trade Secrets Act):

- the information has commercial value;
- disclosure of the information would compromise the claimant’s competitive marketplace advantage;
- the claimant has not disclosed the information in a public manner anywhere else- and the claimant must specifically certify that the information has not been reported in other states, Canada, the EU, the US or any other regulatory body;
- extensive measures have been taken to guard the secrecy of the information;
- the monetary investment of the company in guarding the secrecy of the information; and
- the information could not be easily acquired or duplicated by others through reverse engineering or other means.

The Division should review every trade secret claim and should have 60 days to review each one prior to approval. It must make the basis of its decision as to the validity of a trade secret claim available to the public through an on-line, publicly / easily accessible compendium of

trade secrets claims filed that identifies who filed the claim, when it was filed, the information claimed as confidential in the filing, and a summary of the basis for the claim.

Trade secret claims should be accompanied by a processing fee, a “user fee,” in order to ensure that the Division’s claim evaluation costs are covered. Claims of confidentiality / trade secrets must be applicable for no longer than 5 years. Claimants should have an opportunity to re-substantiate the claim at the end of 5 years. Trade secret claims must not exist in perpetuity. The opportunity to “re-substantiate” the claim must not be indefinite.

If the Division allows trade secrets claims, the regulations should provide that common chemical combinations and processes that are widely used in fracking operations will not be accepted as CBI since protection of these processes and chemical combinations has no market value.

Further, any assertion of a trade secret should be challengeable under the California Public Records Act (Gov. Code § 6255), with the burden on the Division to demonstrate that withholding the information is more protective of public than disclosing the information.

1788.2. Use of Trade Secret Information.

(a) The holder of information withheld as trade secret pursuant to Section 1788.1 shall immediately provide the information to the Division, or to a public agency with lawful jurisdiction for either enforcement action or emergency response, upon receipt of written communication from the Division or other public agency stating that the information is necessary to investigate or respond to evidence of a spill or release of hydraulic fracturing fluid or material or evidence that hydraulic fracturing fluid or material has escaped the intended zone or zones of the hydraulic fracturing operations.

The holder of information withheld as trade secret may request, and the Division or other public agency shall, as soon as circumstances permit, provide an agreement by the Division or other public agency to prevent the disclosure of trade secret information received pursuant to this section, to maintain the confidentiality of trade secret information, and to destroy all copies of the trade secret information received once the need for the information has ended.

(b) The holder of information withheld as trade secret pursuant to Section 1788.1 shall identify the specific identity and amount of any chemicals claimed to be a trade secret to any health professional who, in the scope of his or her professional duties, requests the information in writing, if the health professional executes a confidentiality agreement and provides a written statement of need for the information indicating all of the following:

- (1) The information is needed for the purpose of diagnosis or treatment of an individual;
- (2) The individual being diagnosed or treated may have been exposed to a hazardous chemical; and
- (3) Knowledge of the information will assist in the diagnosis or treatment of the individual. (c) If a health professional determines that a medical emergency exists and the specific identity and amount of any chemicals claimed to be a trade secret pursuant to Section 1788.1 is necessary for emergency treatment, then the holder of information withheld as trade secret shall immediately disclose the information to the health professional upon a verbal acknowledgment by the health professional that the information may not be used for purposes other than the health needs asserted and that the health professional shall maintain the information as confidential. The holder of information withheld as trade secret may request, and the health professional shall provide upon request, a written statement of need and a confidentiality agreement from the health professional as soon as circumstances permit.

NOTE: Authority cited: Section 3013, Public Resources Code. Reference: Section 3106, Public Resources Code; Section 1060, Evidence Code; Section 3426.1, Civil Code; Section 499c, Penal Code.

Analysis/Recommendations

1788.2 (a)

The Coalition finds this section of the regulations to be very problematic. First, it should be noted that “trade secret” information is only released to the Division for enforcement or emergency response upon the following:

[U]pon receipt of written communication from the Division or other public agency stating that the information is necessary to investigate or respond to evidence of a spill or release of hydraulic fracturing fluid or material or evidence that hydraulic fracturing fluid or material has escaped the intended zone or zones of the hydraulic fracturing operations.

In other words, even after a spill or “release”, the operator does not have to provide the trade secret information unless the Division claims the information is “necessary” for the investigation or response. This ignores the requirements for disclosure to health care practitioners treating workers who may have been exposed to substances claimed to be trade secrets.

Even then, the trade secret is only disclosed after the Division or other public agency signs a non-disclosure agreement agreeing to keep the trade secret information confidential and then destroy the trade secret information once the investigation is complete. Note, the public agency shall provide an agreement; it is not optional.

Thus, an operator who has spilled or “released” an unlimited amount of fracking fluid and has already acted in a negligent manner is entitled to prevent the true magnitude of their negligence by preventing the disclosure of the very chemicals that may be most harmful to the public, workers and the environment. We believe that if trade secrets are eventually allowed at all, that there are “all bets are off” circumstances. The public, the landowner, workers, and the harmed party should be able to see the exact chemicals that were released, since that can affect their land, their health, or their business irregardless of the desires of the industry.

1788.2(b)

Section 1788.2(b) constitutes a gag order on physicians, which is not only constitutionally questionable, but would prevent the proper treatment of people exposed to hazardous chemicals. For example, if a farmer or fracking worker comes to a physician for persistent “flu-like” symptoms, and the physician believes that it might be due to exposure to fracking activities, the physician would have to sign a confidentiality agreement before discovering what may be causing the “flu-like” symptoms. In addition, he could not use the confidential information to discover if other physicians in the area have treated anyone for exposure to the trade-secret chemical, or if there were experts with experience in treating such exposure. The physician could not relay the confidential information to regulators who may take action to discover the source of the exposure.

Furthermore, section 1788.2 could block efforts of epidemiologists and others (e.g., the Occupational Health Branch and the Hazard Evaluation System and Information Service is a program in the California Department of Public Health) from discovering the source of spikes of cancer rates or other illnesses, because they are not requesting the information for the purpose of the “diagnosis or treatment of an individual” (section 1788.2(b)(1).) It cannot be in the interest of the people of California to protect from disclosure the existence of hazardous chemicals that have been introduced into the environment. It also undermines the mandates of HESIS and the Occupational Health Branch.

In addition, California does not only have an interest in protecting the human environment, but the natural environment as well. Public investigators attempting to determine the source of bird or mammal deaths would be stymied in their efforts to determine whether a specific chemical in fracking fluid must be banned. (See e.g., DDT.) Certain chemicals may have deleterious effects on plant life without immediately impacting human health. (See e.g. Agent

Orange) While these examples such as DDT and Agent Orange may seem outrageous, we must remember that “fracking is forever.” At no point in time are the chemicals ever fully removed from the earth, and to the extent that the fracking fluid is removed, it is often reinjected as to reuse in the oil/gas production cycle.

Conclusion

The Coalition appreciates the opportunity to provide feedback on the discussion draft. We sincerely hope that our recommendations are adopted and that a robust public input process is adopted to fully capture all of the concerns around hydraulic fracturing. We look forward to hearing your response to our recommendations and would appreciate a meeting to discuss this letter. We look forward to participating in the public workshops and to continuing to engage in the development of these regulations.

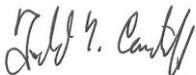
Sincerely,



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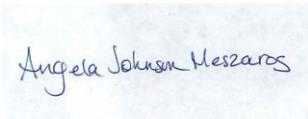
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END NOTES:

ⁱ NOAA, Office of Response and Restoration, Final Report (Sep 2004), Incident News: <http://www.incidentnews.gov/entry/508292>

ⁱⁱ California Planning and Development Report, “Unocal Reaches Deal on Avila Beach” <http://www.cp-dr.com/node/1312> (last accessed 1/16/2013); LA Times, “Avila Beach Prepares for Oil Cleanup” (Nov. 2, 1998), <http://articles.latimes.com/1998/nov/02/news/mn-38554> (last accessed 1/16/2013.)

ⁱⁱⁱ Bakersfieldnow.com, “More problems in oil field where worker died in sinkhole” (August 21, 2011), <http://www.bakersfieldnow.com/news/local/127624563.html> (last accessed 1/16/2013.)

^{iv} House Committee on Energy and Commerce, Minority Staff Report, “Chemicals Used in Hydraulic Fracturing” (April 2011) at p. 3, fn. 4 (citing “Officials in Three States Pin Water Woes on Gas Drilling” ProPublica (Apr. 2009) www.propublica.org/article/officials-in-three-states-pin-water-woes-on-gas-drilling-426)

^v “Chemicals Used in Hydraulic Fracturing”, *supra*, at p. 7.

^{vi} House Committee on Energy and Commerce, “Memorandum re: Examining the Potential Impact of Hydraulic Fracturing” (Feb. 18, 2010) at p. 6.

^{vii} See, Watson TL, Bachu S. Evaluation of the Potential for Gas and CO₂ Leakage Along Wellbores, SPE 106817 (2009); Brufatto C, Cochran J, Power LCD, El-Zeghaty SZAA, Fraboulet B, Griffin T, Munk S, Justus F, Levine J, Montgomery C, Murphy D, Pfeiffer J, Pornpoch T, Rishmani L. From Mud to Cement-Building Gas Wells, *Schlumberger OilField Review*, (Autumn, 2003).

^{viii} House Committee on Energy and Commerce, Minority Staff Report, “Chemicals Used in Hydraulic Fracturing” (April 2011) at p.1.

^{ix} “Chemicals Used in Hydraulic Fracturing” (April 2011) at p.1

^x Elgin, Haas and Kuntz “Fracking Secrets by Thousands keep U.S. Clueless on Wells” Bloomberg News Nov 29, 2012

^{xi} Ironically, Dick Cheney was from Wyoming, which has the strictest disclosure requirements for fracking fluid in the nation. (WCWR 055-000-003, § 45.)

^{xii} U.S. Environmental Protection Agency, “Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs” (June 2004) (EPA 816-R-04-003) at pp 4-11.

^{xiii} Ingraffea, Anthony “Fluid migration mechanisms due to faulty well design and/or construction: An overview and recent experiences in the Pennsylvania Marcellus play” Oct. 2012 <http://www.damascuscitizensforsustainability.org/wp-content/uploads/2012/11/PSECementFailureCausesRateAnalysisIngraffea.pdf>

^{xiv} Business Insider, “10 Disastrous Mistakes BP Made Before The Deepwater Horizon Exploded” (June 1, 2010) at <http://www.businessinsider.com/bp-mistakes-2010-5?op=1> (last accessed 1/16/2013).

^{xv} Cardno-Entrix, “Hydraulic Fracturing Study: PXP Inglewood Oil Field” a p. 3-3 (Oct. 10, 2010)